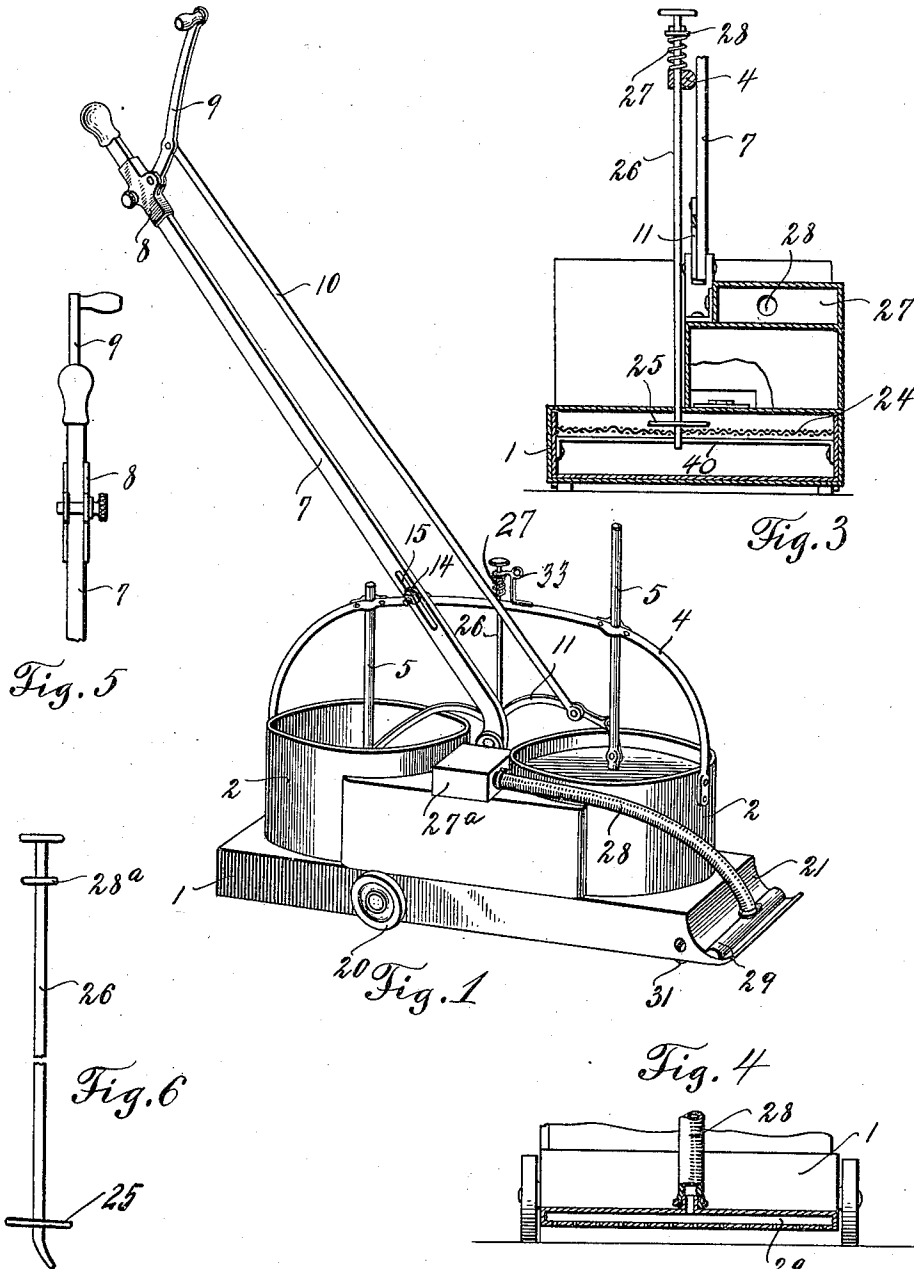


T. B. DOWNEY.
PNEUMATIC OR VACUUM CLEANER.
APPLICATION FILED MAY 5, 1911.

1,006,921.

Patented Oct. 24, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

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INVENTOR

Thomas B. Downey

BY *Charles E. Ross*

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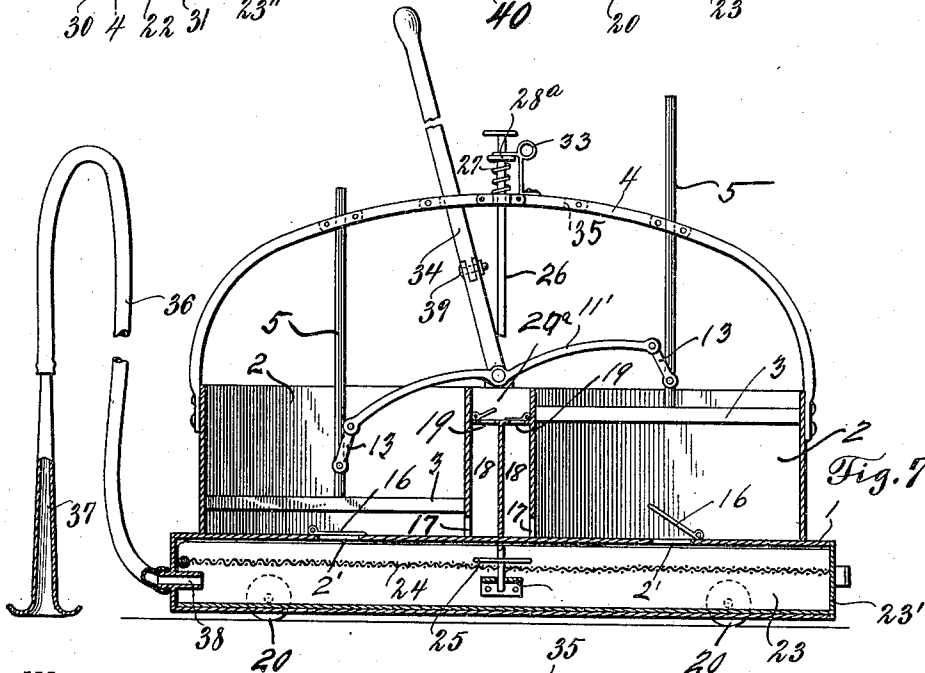
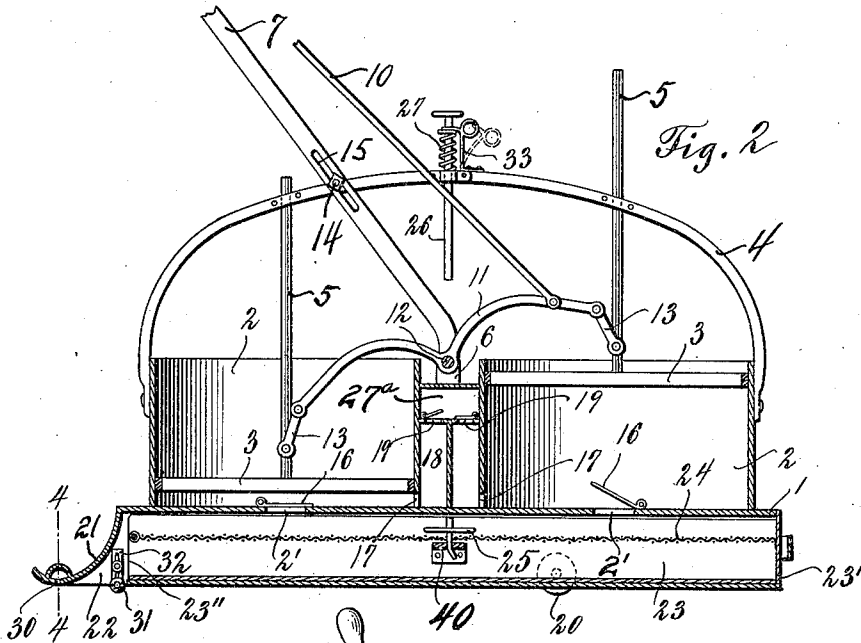
Attorney

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WITNESSES:

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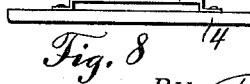


Fig. 8

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UNITED STATES PATENT OFFICE

THOMAS B. DOWNEY, OF SPRINGTOWN, ARKANSAS.

PNEUMATIC OR VACUUM CLEANER.

1,006,921.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed May 5, 1911. Serial No. 625,313.

To all whom it may concern:

Be it known that I, THOMAS B. DOWNEY, a citizen of the United States, residing at Springtown, in the county of Benton and State of Arkansas, have invented certain new and useful Improvements in Pneumatic or Vacuum Cleaners, of which the following is a specification.

This invention embodies improvements in that type of pneumatic or suction cleaners designed particularly for renovating and cleaning carpets, curtains, or the like, and shown in my former Letters Patent No. 990,037, dated April 18, 1911.

The object of the present invention is to provide certain improvements in the construction of my patented machine, and said improvements relate particularly to the provision of a special form of dirt box readily removable from the machine for the purpose of discharging the dirt collected in the operation of the invention.

The invention also resides in a special arrangement and combination of parts including a knocker for vibrating the filtering screen or sieve of the dirt box.

For a full understanding of the present invention, reference is to be had to the following description and to the accompanying drawings, in which—

Figure 1 is a perspective view of a pneumatic cleaner embodying the essential features of the invention; Fig. 2 is a vertical longitudinal section of the same; Fig. 3 is a transverse section; Fig. 4 is a fragmentary view partly in section on the line 4—4 of Fig. 2; Fig. 5 is a detail view of the upper end of the handle bar and associated parts; Fig. 6 is a detail view of the knocker rod; Fig. 7 is a sectional view showing a modified adaptation of the invention; Fig. 8 is a fragmentary view of the central portion of the guide bar shown in the construction of Fig. 7, bringing out the arrangement of the guide member thereon.

Specifically describing the invention, 1 denotes a dirt receiving chamber forming the base of the machine, which may be of somewhat rectangular form, as illustrated, or other general shape. Extending upwardly from the top of the dirt chamber 1 are the cylinders 2 in which are mounted suction pistons 3. A curved guide bar 4 is attached at its ends to the upper outermost portions of the cylinders 2 and is formed with bearings through which the piston rods 5 pass, the

latter coacting with the part 4 to guide the pistons as the same are reciprocated. Pivoted to a bracket 6 arranged intermediate the cylinders 2 is a handle bar 7, the latter having an adjustable sleeve 8 at its upper end to which is pivoted the actuating lever 9. The lever 9 is connected by a rod 10 to a double-armed rocker lever 11, said lever being pivoted intermediate its ends to the pivot 12 which connects the bar 7 to the bracket 6. Links 13 connect the opposite ends of the rocker lever 11 to the respective piston rods 5. The handle bar 7 is utilized for moving the machine back and forth and said bar is adjustable bodily by means of a fastening 14 movable in a slot 15 lengthwise of the bar, said fastening coacting with the guide bar 4 to hold the member 7 at a predetermined adjustment. The inclination of the handle bar 7 may therefore be varied so as to raise and lower the upper end of the bar to facilitate operation of the machine by persons of different heights.

The cylinders 2 have at the bottom portions thereof the inlets 2', controlled by flap valves 16 and outlet openings 17 at adjacent sides of the cylinders establish communication between the cylinders and the outlet compartments 18, the latter being provided at their upper ends with the outlet valve controlled openings 19.

The dirt chamber 1 has mounted on the sides thereof suitable supporting rollers 20 and at one end of said chamber is formed a downwardly and outwardly curving guard 21 extending over the inlet 22 of the chamber. The end of the dirt chamber 1 opposite the inlet 22 is adapted to be closed by the closed end 23' of a dirt box 23, the latter being virtually a sliding drawer movable into and out of the dirt chamber. The inner end of the dirt box 23 is open at 23'' so that the dirt drawn into the chamber 1 through the inlet 22 by the operation of the pistons 3, will be received by the dirt box 23. A screen or similar baffle 24 extends throughout the length of the dirt box and is arranged between the inlet 22 and the valved air inlet openings 2' of the cylinders 2, dirt or other foreign matter being thus prevented from entering the cylinders.

A knocker for vibrating the screen or baffle 24, to detach therefrom dirt or foreign matter tending to clog the same, is employed. The knocker is shown at 25 and consists of a plate connected to a knocker

rod 26 which extends upwardly from the central portion of the screen 24, the upper end of rod 26 being guided by a keeper on the guide bar 4 and the lower end of the rod 26 passing through an opening in the top of the dirt chamber 1. A coiled spring 27 normally bears against a shoulder 28^a near the upper end of the rod 26, to hold the knocker 25 slightly elevated from the screen 24, it being only necessary to tap the rod 26 slightly in order to actuate the same centrally to cause engagement of the knocker 25 with the screen 24, which is thus vibrated to precipitate therefrom dirt or foreign particles clinging thereto.

It will be apparent that the pistons 3 are reciprocated by the actuation of the lever 9 by the operator and the air is drawn into the cylinders 2 through the openings 2' and passes from the cylinders through the opening 17 into the air compartments 18 from which the air passes through the openings 19 into an auxiliary air compartment 27^a from which the air passes through a hose or conduit 28 to a discharge nozzle 29 which extends transversely to the dirt chamber and is preferably located above the guard 21. Small apertures 30 permit the air to pass from the nozzle 29 downwardly against the carpet or other part, which is being cleaned so as to agitate the material of the carpet to a certain extent, loosening the same to more effectively permit of detachment of dirt and foreign matter by the suction created at the inlet opening 22 of the dirt chamber 1.

If desired, the hose 28 may be disconnected from the nozzle 29 and the air drawn into the cylinders will thus be discharged finally into the open atmosphere. Small rollers 31 are carried by the adjustable brackets 32 mounted on the sides of the dirt chamber adjacent to the inlet 22 and these rollers permit of adjustment of the inlet end of the dirt chamber with respect to the floor or other part over which the machine is operated.

The knocker 25 is utilized to perform a dual function, the lower end of the knocker rod 26 being extended below the knocker 25 so as to engage with a lock plate 40 attached to the sides of the box 23, the lower extremity of the rod 26 being slightly inclined from the vertical to have a sort of wedging action as it passes through the opening in the plate 40. The rod 26 is thus adapted to lock the dirt box or drawer 23 in its closed

position and prevents likelihood of displacement of the drawer through the vibration of the various parts of the machine, avoiding also the necessity of employing special locking means for the dirt box. To permit of ready removal of the dirt box 23, a bearing bracket 33 is pivoted to the bar 4 adjacent to the spring 27 and has an arm to engage over the shoulder 28^a of the rod 26. By pulling the bracket 33 outwardly, a movement permitted by the resiliency of the metal frame while the bracket is made, the operator may readily raise the rod 26 and disengage the lower end of the rod from the lock plate 40, whereupon the box 23 may be removed from the dirt chamber 1.

In the modification in Fig. 7, the rocker lever 11' is actuated by a hand lever 34 which operates between a side of the bar 4 and a bracket 35 attached to said bar 4. The machine shown in Fig. 7 is utilized particularly for pneumatic cleaning of curtains, or the like, a hose 36 and nozzle 37 being connected to a nipple 38 at the closed end of the dirt chamber 1. The lever 34 has its upper portion detachably connected to its lower portion by a fastening 39 in order that the lever may be properly arranged with respect to the guide member 35.

Having thus described the invention, what is claimed as new is:

1. In a vacuum cleaning machine, the combination of a dirt chamber, a suction device connected thereto, a dirt box removably fitted in the dirt chamber, a screen interposed between the dirt box and the suction device, and a knocker for said screen coacting with the dirt box to normally prevent displacement of the latter.

2. In a vacuum cleaning machine, the combination of a dirt chamber having a dirt inlet, suction devices connected to said chamber, a removable dirt box in said chamber, a screen interposed between the dirt inlet and the suction devices, a knocker for said screen, a rod for actuating said knocker, and a locking member carried by the dirt box engageable by said rod, whereby the dirt box is normally prevented from displacement.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS B. DOWNEY.

Witnesses:

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W. E. McINTYRE.